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given, and since the series $\frac{1}{d}\left(\frac{f}{n(n+f)}+\ldots\ldots\right)$ converges rapidly, we may approximately determine the sum of n terms of any harmonic series.

NOTE ON THE MAXIMUM INDICATOR OF CERTAIN ODD NUMBERS.

By REV. R. D. CARMICHAEL, Hartselle, Alabama.

If p, the least prime factor of N, is of the form $4l+1$, the maximum indicator of N is a multiple of 4.

In the MONTHLY, May, 1905, p. 107, I have shown that, for p a prime of the form $4l+1$, we have

$$\left(1.2.3\ldots\ldots\frac{p-1}{2}\right)^2\equiv-1\ (\mathrm{mod}\ p).$$

Hence, if $\left(1.2.3\ldots\ldots\frac{p-1}{2}\right)^{2n}\equiv1\ (\mathrm{mod}\ N)$, n is even; and therefore the maximum indicator of N, being a multiple of the least value $2n$ satisfying the above congruence, is also a multiple of 4.

Corollary. *The equation $y^4=mx+1$ has at least one positive integral solution when the least factor of m is congruent to unity modulo 4.*

By Wilson's theorem, it is easily shown as above that

The maximum indicator of any odd number is even.

Corollary. *The equation $y^2=mx+1$ has at least one positive integral solution, when m is odd.*

If p and $2p-1$ are odd primes, the maximum indicator of $p(2p-1)$ is a multiple of 4.

As in the first congruence above we have

$$(1.2.3\ldots\ldots\overline{p-1})^2\equiv-1\ (\mathrm{mod}\ 2p-1).$$

By Wilson's theorem,

$$(1.2.3\ldots\ldots\overline{p-1})^2\equiv1\ (\mathrm{mod}\ p).$$

$$\text{Thus } (1.2.3\ldots\ldots\overline{p-1})^4\equiv1\ (\mathrm{mod}\ p.\overline{2p-1}).$$

Now, $(1.2.3\ldots\ldots\overline{p-1})$ is not congruent to 1 modulo $p.\overline{2p-1}$. It is thus shown that one indicator, at least, is 4. Hence the maximum indicator is a multiple of 4.